REMARKS

Summary of the Office Action

Claims 5-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,589,227 to Klint ("Klint") in view of U.S. Patent No. 5,653,697 to Shiber ("Shiber").

Claims 5-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klint in view of Shiber and further in view of U.S. Patent No. 6,342,066 to Toro ("Toro").

Summary of the Response to the Office Action

Claims 10-12 are pending for consideration. Claims 1-9 have been cancelled. New claims 10-12 have been added.

The Rejections under 35 U.S.C. § 112, Second Paragraph

Claims 5-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is moot because claims 5-9 have been cancelled.

The Rejections under 35 U.S.C. § 103(a)

Claims 1-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,589,227 to Klint ("Klint") in view of U.S. Patent No. 5,653,697 to Shiber ("Shiber").

Claims 5-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klint in view of Shiber and further in view of U.S. Patent No. 6,342,066 to Toro ("Toro"). The rejections of claims 1-9 under 35 U.S.C. § 103(a) are moot because claims 1-9 have been cancelled.

New Claims

New claims 10-12 have been added. Applicants respectfully submit that these claims are distinguishable from the cited prior art for reasons explained below.

Claim 10 recites that the austenitic stainless steel wires are secured to a rotational chuck and a slidable chuck from which a weight is depended, and concurrently twisted under a tensile stress caused from a weight, and electric currents drawn to the austenitic stainless steel wires to be heated by its electric resistance. This makes it possible to achieve a high torque-transmissibility and a good rotational operability in the subject flexible hollow tube body. Claim 10 further recites that helical grooves are provided inside the flexible tube body to carry away a hard clot powder pulverized by the knife-edge circle front in a rearward direction along the helical groove. Because of the flexible tube body formed by the plurality of wires with an increased helical pitch, it is possible to efficiently carry away the pulverized hard clot powder rearward along helical grooves with a greater conveyance in a single rotational operation.

Klint discloses an endovascular medical device having a plurality of wires. The Klint catheter has helically wound groups marked as "V", "IV", and "III", each having five, four, and three wires, respectively, in a row. Each time a wire is left out of the row, the pitch gets shorter and the pitch angle grows, resulting in an even more flexible segment. (See col. 7, lines 14-25.)

Klint does not disclose or suggest the features of the austenitic stainless steel wires being secured to a rotational chuck and a slidable chuck from which a weight is depended, and concurrently twisted under a tensile stress caused from a weight, and electric currents drawn to the austenitic stainless steel wires to be heated by its electrical resistance, as recited in claim 10. Further, Klint does not disclose or suggest the helical grooves provided inside the flexible tube body recited in claim 10. Claim 10 further recites austenitic stainless steel wires cylindrically stranded around an elongate core into a wire-rope configuration, and concurrently twisted under a tensile stress to provide a twisting method, generally referred to as a "stranding method done under an even tensile stress." This makes it possible to provide good linearity and appropriate twist along the lengthwise direction, while at the same time, equalizing the relative sliding action therebetween the coil turns of the stranded wire, thus preventing a clearance from developing between the coil turns at the tensile side of the flexible hollow tube body even when the flexible hollow tube body is greatly bent to its minimum diameter in the blood vessel so as to enable the operator to smoothly bend the flexible hollow tube body.

Shiber discloses a stent unclogging method in which a flexible rotary catheter has a tubular blade at its distal end for separating the obstruction from the stent and defining a continuous passage around a flexible guide wire assembly for ingesting the cut obstruction material. (See col. 4, lines 25-29.) Like Klint, Shiber does not disclose or suggest the features of the austenitic stainless steel wires being secured to a rotational chuck and a slidable chuck from which a weight is depended, and concurrently twisted under a tensile stress caused from a weight, and electric currents drawn to the austenitic stainless steel wires to be heated by its

electrical resistance, as recited in claim 10. Further, as with Klint, Shiber does not disclose or suggest the helical grooves provided inside the flexible tube body recited in claim 10.

Toro discloses a pull back sleeve system with a compression resistant inner shaft. In Toro's pull back sleeve system, a stent is mounted on a lower-layered tube and released by means of the outer tube. Toro further discloses that a manipulating portion of the lower-layered tube and an upper-layered tube are connected in a row to a handling section. However, Toro does not disclose or suggest the same features of claim 10 which are missing from Klint and Shiber.

The present invention is directed to the concept of using a flexible hollow tube body formed by a plurality of austenitic stainless steel wires cylindrically stranded around an elongate core into a wire-rope configuration, one end of the austenitic stainless steel wires being secured to a slidable chuck from which a weight is depended, and concurrently twisted under a tensile stress caused from a weight, and electric currents drawn to the austenitic stainless steel wires to be heated by an electric resistance of the austenitic stainless steel wires and thereafter withdrawn from the elongate core to form a flexible tube body, and a knife-edge circle front welded to a leading end of the flexible hollow tube body as a blade edge which diametrically decreases progressively as approaching forward, the blade edge of the knife-edge circle front being outwardly arcuated in cross section and being advanced to be rotated as a drill from a guide wire so as to perforate a hard clot of an obstructed area, and the hard clot area being pulverized by the knife-edge circle front to produce a hard clot powder; and helical grooves provided inside the flexible tube body to carry away the hard clot powder in a rearward direction therealong. Therefore, none of the cited references (Klint, Shiber, and Toro) teach or suggest the

technological idea of the present invention and the invention is not obvious over any of Klint, Shiber, and Toro, alone or in combination.

Because claims 11 and 12 depend from claim 10, Applicants respectfully submit that those claims are not anticipated or rendered obvious by Klint, Shiber, and/or Toro. Applicants respectfully submit that claims 10-12 are in condition for allowance. Early allowance of claims 10-12 is earnestly solicited.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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